



Discovering Geometry

An Investigative Approach

Pacing Guide
New York City

NYC Pacing Guide for *Discovering Geometry*

Teacher Notes

Pacing Schedule

The Pacing Guide is structured on a 90-day first semester and a 66-day second semester to allow for ample review time in the second semester prior to the Regents exam. If you need more time for the first semester, you can move Chapter 7 to the second semester.

Classwork and Homework Recommendations

Classwork recommendations usually include skills practice and problems that require construction tools. If time does not allow these problems to be done in class, these should be completed as homework prior to the recommended homework problems.

Homework problems include embedded review. Selected review problems focus on continued practice with proof, measurement, and problems involving solids.

If additional skills practice is needed, the Teacher's Resource Package contains *Practice Your Skills* worksheets for every lesson that can be used to supplement the assigned exercises.

Standards Requiring Additional Support

While most of the following standards are covered in *Discovering Geometry*, you may wish to supplement their coverage:

G.G.2 Know and apply that through a given point there passes one and only one plane perpendicular to a given line

G.G.3 Know and apply that through a given point there passes one and only one line perpendicular to a given plane

- G.G.5 Know and apply that two planes are perpendicular to each other if and only if one plane contains a line perpendicular to the second plane
- G.G.6 Know and apply that if a line is perpendicular to a plane, then any line perpendicular to the given line at its point of intersection with the given plane is in the given plane
- G.G.7 Know and apply that if a line is perpendicular to a plane, then every plane containing the line is perpendicular to the given plane
- G.G.9 Know and apply that if two planes are perpendicular to the same line, they are parallel
- G.G.22 Solve problems using compound loci
- G.G.23 Graph and solve compound loci in the coordinate plane
- G.G.24 Determine the negation of a statement and establish its truth value
- G.G.25 Know and apply the conditions under which a compound statement (conjunction, disjunction, conditional, biconditional) is true
- G.G.26 Identify and write the inverse, converse, and contrapositive of a given conditional statement and note the logical equivalences
- G.G.63 Determine whether two lines are parallel, perpendicular, or neither, given their equations
- G.G.65 Find the equation of a line, given a point on the line and the equation of a line parallel to the desired line
- G.G.70 Solve systems of equations involving one linear equation and one quadratic equation graphically
- G.G.74 Graph circles of the form $(x - h)^2 + (j - k)^2 = r^2$

NYC Pacing Chart for *Discovering Geometry* Chapter 0

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 1	0.1	What are the different kinds of symmetry?	Discover geometry in nature, art, and world cultures Discover the characteristics of reflectional and rotational symmetry Set the tone with a positive, unthreatening start of the course Develop observational and visual thinking skills	1-2, 9	3-6, 10, 11
	NYSED Performance Indicators Addressed CN.6: Recognize and apply mathematics to situations in the outside world				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 2	0.2	What are construction tools?	Create line designs with straightedges Give students an appreciation for geometry	1, 3, 4	6, 7
	NYSED Performance Indicators Addressed CN.6: Recognize and apply mathematics to situations in the outside world				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 3	0.3	What is a regular hexagon?	Create circles with a compass Construct regular hexagons with a compass and straightedge Practice using construction tools Continue to explore reflectional and rotational symmetry	1-3	4-5
	NYSED Performance Indicators Addressed				
	CN.6: Recognize and apply mathematics to situations in the outside world				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 4	0.4	How can symmetry be used to suggest depth in a drawing?	Create optical art using geometry tools Introduce students to examples of optical art Use a straightedge and compass together	1-3	4
	NYSED Performance Indicators Addressed				
	CN.6: Recognize and apply mathematics to situations in the outside world				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 5	0.5	How can I visualize and represent three dimensions on a flat surface?	Explore geometric patterns in knot designs Demonstrate cultural ties to geometric art Visualize three dimensions on a flat surface Represent three dimensions on a flat surface Practice using geometry tools Use dashed or hidden lines to represent edges of three-dimensional objects	1, 2, 8	3-5, 9
	NYSED Performance Indicators Addressed				
	CN.6: Recognize and apply mathematics to situations in the outside world				
Pacing	NYSED Performance Indicators Reinforced				
	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
	0.6	What is a tessellation?	Explore geometry in Islamic art Practice using geometry tools Explore tessellations	1, 3, 4	5-8

	NYSED Performance Indicators Addressed CN.6: Recognize and apply mathematics to situations in the outside world
	NYSED Performance Indicators Reinforced

NYC Pacing Chart for *Discovering Geometry* Chapter 1

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 7	1.1	What is the terminology and notation of points, segments, lines, rays, planes, angles, and collinear and coplanar points?	<p>Learn the terminology and notation points, segments, lines, rays, planes, angles, and collinear and coplanar points</p> <p>Learn the idea of congruence of line segments</p> <p>Learn how to mark congruence of segments on a diagram</p>	2-16 (even), 20	1-33 (odd), 18
	NYSED Performance Indicators Addressed CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form CM. 11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester	Using Your Algebra Skills 1	How do I find the midpoint of a line segment?	<p>Learn the algebraic formula for determining the midpoint of a line segment</p> <p>Review coordinate midpoint property</p>	Example, 1, 4, 8	2, 3, 5-5

	NYSED Performance Indicators Addressed G.G.66 Find the midpoint of a line segment, given its endpoints G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures G.R.3 Use representation as a tool for exploring and understanding mathematical ideas				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 9	1.2	How do I determine the congruence of angles?	Learn how to show the measurement of angles and segments on figures Practice using the tools of measurement (protractor and ruler) Become familiar with the symbols for marking figures Learn the idea of congruence of angles Learn that, in physical situations, the incoming angle is equal in measure to the outgoing angle	Investigation "Virtual Pool" 1-15 odd, 39, 40, 45	2–24 even, 34, 36, 37, 40, 41, 42
	NYSED Performance Indicators Addressed CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form CM. 11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 10	1.3	How do I write a definition?	Practice writing definitions Define special angle relationships Explore more vocabulary Develop critical thinking	Investigation “Defining Angles” 1-9	11–20, 22, 24, 26, 29
	NYSED Performance Indicators Addressed G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use symbols and other representations when sharing an idea in verbal and written form G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				

	NYSED Performance Indicators Reinforced 6.RP.8 Support an argument through example/counterexamples and special cases 7.RP.7 Devise ways to verify results or use counterexamples to refute incorrect statements 8.RP.7 Devise ways to verify results or use counterexamples to refute incorrect statements 8.G.1 Identify pairs of vertical angles as congruent 8.G.2 Identify pairs of supplementary and complementary angles 8.G.3 Calculate the missing angle in a supplementary or complementary pair				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 11	1.4	What are the different types of polygons?	Define and classify polygons and related terms Practice writing definitions Learn more vocabulary Develop critical thinking and cooperative behavior	Quiz, Lessons 1.1-1.3 Investigation "Special Polygons" 1-7, 11	12-17, 21-23
	NYSED Performance Indicators Addressed G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures G.CM. 11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 12	1.5	What are the different types of triangles?	Define and classify triangles and their related parts Practice writing definitions Learn more vocabulary related to triangles	Investigation “Triangles” 5-10	1-4, 11-15, 17-21
	NYSED Performance Indicators Addressed G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework

Semester 1: Day 13	1.6	What are the different types of quadrilaterals?	Define and classify quadrilaterals and their related parts Practice writing definitions Learn more vocabulary related to quadrilaterals	Investigation “Special Quadrilaterals” 7-13	1-6, 15, 16 (15 and 16 require graph paper)
	NYSED Performance Indicators Addressed G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 14	1.7	What are the parts and characteristics of a circle?	Define a circle and related figures Practice creating definitions Identify the parts of a circle Review construction skills Develop writing skills and cooperative behavior	Quiz, Lessons 1.4-1.7 Investigation “Defining Circle Terms” 1-9, 22	10, 11, 14, 15, 19, 20, 23-26, 29-37

	NYSED Performance Indicators Addressed G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing G.CN.5 Understand how quantitative models connect to various physical models and representations				
	NYSED Performance Indicators Reinforced 6.G.5 Identify radius, diameter, chords and central angles of a circle 6.G.6 Understand the relationship between the diameter and radius of a circle				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 15	1.8	What are some different types of solids and how can I draw them?	Visualize objects and relationships in two and three dimensions Practice drawing skills Introduce some of the geometric solids Discuss and visualize cross sections of solids	Investigation "Space Geometry" 1-6	8, 10–27

NYSED Performance Indicators Addressed

G.G.1 Know and apply that if a line is perpendicular to each of two intersecting lines at their point of intersection, then the line is perpendicular to the plane determined by them

G.G.2 Know and apply that through a given point there passes one and only one plane perpendicular to a given line

G.G.3 Know and apply that through a given point there passes one and only one line perpendicular to a given plane

G.G.4 Know and apply that two lines perpendicular to the same plane are coplanar

G.G.5 Know and apply that two planes are perpendicular to each other if and only if one plane contains a line perpendicular to the second plane

G.G.6 Know and apply that if a line is perpendicular to a plane, then any line perpendicular to the given line at its point of intersection with the given plane is in the given plane

G.G.7 Know and apply that if a line is perpendicular to a plane, then every plane containing the line is perpendicular to the given plane

G.G.8 Know and apply that if a plane intersects two parallel planes, then the intersection is two parallel lines

G.G.9 Know and apply that if two planes are perpendicular to the same line, they are parallel

G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements

G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams

G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts

NYSED Performance Indicators Reinforced

7.G.3 Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones, and pyramids)

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 16	1.9	How can I use drawing to solve a word problem?	Translate descriptions into diagrams and vice versa Solve word problems by first translating each into a labeled drawing Develop visual thinking skills	Examples A-C, 1-3, 5, 7-9, 17	4, 6, 10-15, 18-20, 25-33
	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.PS.6 Use a variety of strategies to extend solution methods to other problems G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.3 Use representation as a tool for exploring and understanding mathematical ideas G.G.22 Solve problems using compound loci				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
es	Chapter 1 Review			1-25	26-32 even, 39-44, 48, 53-55

	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 18	Chapter 1 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Chart for *Discovering Geometry* Chapter 2

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 19	2.1	What is inductive reasoning and how can I use it to solve problems?	<p>Introduce and familiarize students with inductive reasoning</p> <p>Use inductive reasoning to find the next term in a number or picture pattern</p> <p>Develop cooperative behavior</p>	<p>Investigation “Shape Shifters”</p> <p>1-4, 22</p>	5–17 odd, 25-30, 36-40
	<p>NYSED Performance Indicators Addressed</p> <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.PS.6 Use a variety of strategies to extend solution methods to other problems</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.RP.2 Use mathematical strategies to reach a conclusion</p> <p>8.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures</p>				

	7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 20	2.2	How do I find the next term in the sequence?	Generalize basic number patterns to a method for finding the n th term in a linear number sequence Learn new vocabulary Practice inductive reasoning and cooperative behavior	Investigation "Finding the Rule" 1-4	5–9, 13, 14, 17
	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.PS.6 Use a variety of strategies to extend solution methods to other problems G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CM.4 Explain relationships among different representations of a problem G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				

Pacing	<p>G.CN.1 Understand and make connections among multiple representations of the same mathematical idea</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.RP.2 Use mathematical strategies to reach a conclusion</p> <p>7.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>8.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures</p>				
	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 21	2.3	How can I use inductive reasoning to find patterns?	<p>Apply inductive reasoning to finding patterns</p> <p>Apply mathematical models to problem solving</p> <p>Develop visualization skills and cooperative behavior</p>	<p>Investigation “Party Handshakes”</p> <p>1-7</p>	8–10, 11–19 odd
	<p>NYSED Performance Indicators Addressed</p> <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations)</p> <p>G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic)</p> <p>G.PS.6 Use a variety of strategies to extend solution methods to other problems</p>				

	<p>G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form</p> <p>G.CM.4 Explain relationships among different representations of a problem</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations</p> <p>G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics</p> <p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p> <p>G.R.4 Select appropriate representations to solve problem situations</p> <p>G.R.5 Investigate relationships between different representations and their impact on a given problem</p>
--	--

	NYSED Performance Indicators Reinforced 7.RP.2 Use mathematical strategies to reach a conclusion 7.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures 8.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 22	2.4	How is deductive reasoning different from inductive reasoning?	Introduce and familiarize students with the deductive reasoning process Learn the relationship between inductive and deductive reasoning	Quiz Lessons 2.1-2.3 Investigation "Overlapping Segments" 1, 5, 10, 11	2–9, 13, 15, 18, 20–31
	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.PS.6 Use a variety of strategies to extend solution methods to other problems G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture,				

	reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				
	NYSED Performance Indicators Reinforced 8.RP.6 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 23	2.5	What are the Linear Pair and Vertical Angles conjectures? How do I know they are true?	Discover relationships between special pairs of angles Practice performing investigations and writing conjectures Practice measurement skills Develop inductive reasoning and cooperative behavior	Investigations “The Linear Pair Conjecture” and “Vertical Angles Conjecture” 1-3, 6, 22	4-5, 7, 9-10, 13-17
	NYSED Performance Indicators Addressed G.G.27 Write a proof arguing from a given hypothesis to a given conclusion G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.PS.6 Use a variety of strategies to extend solution methods to other problems G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.5 Present correct mathematical arguments in a variety of forms				

	<p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.R.5 Investigate relationships between different representations and their impact on a given problem</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>8.G.1 Identify pairs of vertical angles as congruent</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 24	2.6	What relationships are there between angles formed by a transversal cutting parallel lines?	<p>Explore relationships of the angles formed by a transversal cutting parallel lines</p> <p>Learn new vocabulary</p> <p>Practice construction skills</p> <p>Develop inductive reasoning abilities, problem-solving skills, and cooperative behavior</p>	<p>Investigations “Which Angles Are Congruent?” and “Is the Converse True?”</p> <p>1-3, 7</p>	4-6, 9, 10, 13-20

NYSED Performance Indicators Addressed

G.G.27 Write a proof arguing from a given hypothesis to a given conclusion

G.G.35 Determine if two lines cut by a transversal are parallel, based on the measure of given pairs of angles formed by the transversal and the lines

G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems

G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving

G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem

G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion

G.RP.5 Present correct mathematical arguments in a variety of forms

G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)

G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures

G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem

G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures

G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams

G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing

G.R.5 Investigate relationships between different representations and their impact on a given problem

	NYSED Performance Indicators Reinforced 8.A.12 Apply algebra to determine the measure of angles formed by or contained in parallel lines cut by a transversal and by intersecting lines 8.G.4 Determine angle pair relationships when given two parallel lines cut by a transversal 8.G.5 Calculate the missing angle measurements when given two intersecting lines and an angle 8.G.6 Calculate the missing angle measurements when given two intersecting lines and an angle				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 25	Using Your Algebra Skills 2	How can I use slope triangles to find the slope of a line?	Review slope as a measure of steepness Use slope triangles and the slope formula to calculate the slope of a graphed line	Quiz, Lessons 2.4-2.6 1, 3, 4	2, 5-8
	NYSED Performance Indicators Addressed G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations)				
	NYSED Performance Indicators Reinforced 8.G.13 Determine the slope of a line from a graph and explain the meaning of slope as a constant rate of change A.A.32 Explain slope as a rate of change between dependent and independent variables A.A.33 Determine the slope of a line, given the coordinates of two points on the line				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 26	Chapter 2 Review			4-10, 12, 17-21	11, 13-16, 22-25
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework

Semester 1 : Day 27	Chapter 2 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 3

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 28	3.1	How do I duplicate a line segment or an angle with construction tools?	<p>Introduce geometric construction with straightedge and compass, and with patty paper</p> <p>Distinguish among constructions, sketches, and drawings of geometric figures</p> <p>Discover construction methods to duplicate a segment, an angle, and a polygon</p> <p>Practice using construction tools</p>	<p>Investigations “Duplicating a Segment” and “Duplicating an Angle”</p> <p>1-8</p>	12, 14-17
	NYSED Performance Indicators Addressed G.G.20 Construct an equilateral triangle, using a straightedge and compass, and justify the construction G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Day 29	3.2	How do I construct perpendicular bisectors and midpoints?	<p>Discover a method of constructing perpendicular bisectors and midpoints</p> <p>Make conjectures about perpendicular bisectors</p> <p>Practice using geometry tools</p>	<p>Investigations “Finding the Right Bisector” and “Constructing</p>	15-20, 22

				the Perpendicular Bisector”	
				1-10	
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.18 Construct the perpendicular bisector of a given segment, using a straightedge and compass, and justify the construction</p> <p>G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts</p> <p>G.R.4 Select appropriate representations to solve problem situations</p> <p>G.R.5 Investigate relationships between different representations and their impact on a given problem</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>8.G.0 Construct the following, using a straightedge and compass: segment congruent to a segment, angle congruent to an angle, perpendicular bisector, angle bisector</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1 : Day 30	3.3	How do I construct a perpendicular to a given line through a given point?	<p>Discover methods of constructing a perpendicular to a line from a point not on the line and from a point on the line</p> <p>Determine a method of finding the shortest path from a point to a line</p> <p>Practice using geometry tools</p>	<p>Investigations “Finding the Right Line” and “Patty-Paper Perpendiculars”</p> <p>1-3, 6-8</p>	15-19

	NYSED Performance Indicators Addressed G.G.19 Construct lines parallel (or perpendicular) to a given line through a given point, using a straightedge and compass, and justify the construction G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts G.R.5 Investigate relationships between different representations and their impact on a given problem				
	NYSED Performance Indicators Reinforced 8.G.0 Construct the following, using a straightedge and compass: segment congruent to a segment, angle congruent to an angle, perpendicular bisector, angle bisector				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 31 and 32	3.4	How do I construct an angle bisector?	Discover methods of constructing an angle bisector Make a conjecture about angle bisectors Explore how to construct special angles by dividing and combining 60° and 90° angles Practice construction skills	Quiz, Lessons 3.1-3.3 Investigations “Angle Bisecting by Folding” and “Angle Bisecting with a Compass” 6-10, 13	1-5, 12, 14-21
	NYSED Performance Indicators Addressed G.G.17 Construct a bisector of a given angle, using a straightedge and compass, and justify the construction G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts G.R.5 Investigate relationships between different representations and their impact on a given problem				

	NYSED Performance Indicators Reinforced 8.G.0 Construct the following, using a straightedge and compass: segment congruent to a segment, angle congruent to an angle, perpendicular bisector, angle bisector				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 33	3.5	How do I construct a parallel line?	Discover methods of constructing parallel lines Review vocabulary	Investigation “Constructing Parallel Lines by Folding” 1-8	9, 10, 14-17
	NYSED Performance Indicators Addressed G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts G.G.19 Construct lines parallel (or perpendicular) to a given line through a given point, using a straightedge and compass, and justify the construction				
	NYSED Performance Indicators Reinforced 8.G.0 Construct the following, using a straightedge and compass: segment congruent to a segment, angle congruent to an angle, perpendicular bisector, angle bisector				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 33	Using Your Algebra Skills 3	How are parallel and perpendicular lines related to their slope?	Investigate the relationship between the slopes of parallel lines Investigate the relationship between the slopes of perpendicular lines	Examples A and B, 1, 2-12 even	3-13 odd

	NYSED Performance Indicators Addressed G.G.62 Find the slope of a perpendicular line, given the equation of a line G.G.63 Determine whether two lines are parallel, perpendicular, or neither, given their equations G.G.69 Investigate, justify, and apply the properties of triangles and quadrilaterals in the coordinate plane, using the distance, midpoint, and slope formulas G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics				
	Reinforced Contents Strands A.A.33 Determine the slope of a line, given the coordinates of two points on the line A.A.38 Determine if two lines are parallel, given their equations in any form				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 35	3.6	How is a triangle determined?	Explore through construction whether or not a triangle can be determined given certain parts Pull together a variety of construction techniques Develop problem-solving skills and cooperative behavior	Examples A and B 1-7	8, 12-16
	NYSED Performance Indicators Addressed G.G.19 Construct lines parallel (or perpendicular) to a given line through a given point, using a straightedge and compass, and justify the construction				
	NYSED Performance Indicators Reinforced 8.G.0 Construct the following, using a straightedge and compass: segment congruent to a segment, angle congruent to an angle, perpendicular bisector, angle bisector				

Pacing	Lesson	Central Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 36	Exploration “Perspective Drawing”	How can I use parallel and perpendicular lines to create 3-D drawings?	Construct realistic-looking boxes with the use of perspective Develop problem-solving skills and cooperative behavior	Quiz, Lessons 3.4-3.6 Activity “Boxes in Space”	
	NYSED Performance Indicators Addressed G.G.21 Investigate and apply the concurrence of medians, altitudes, angle bisectors, and perpendicular bisectors of triangles G.R.3 Use representation as a tool for exploring and understanding mathematical ideas				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 37	3.7	What is the relationship between different points of concurrency and inscribed and circumscribed circles?	Discover points of concurrency of the angle bisectors, perpendicular bisectors, and altitudes of a triangle Explore the relationship between points of concurrency and inscribed and circumscribed circles Learn new terms Solve application problems related to points of concurrency Develop reading comprehension, problem-solving skills, and cooperative behavior	Investigations “Concurrence”, “Circumcenter”, and “Incenter” Developing Proof Activity (page 181) 5-9	1-4, 10, 12-14

	NYSED Performance Indicators Addressed G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations G.R.3 Use representation as a tool for exploring and understanding mathematical ideas G.R.4 Select appropriate representations to solve problem situations G.G.17 Construct a bisector of a given angle, using a straightedge and compass, and justify the construction G.G.18 Construct the perpendicular bisector of a given segment, using a straightedge and compass, and justify the construction G.G.21 Investigate and apply the concurrence of medians, altitudes, angle bisectors, and perpendicular bisectors of triangles				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
38 Semester 1: Day	3.8	What is a centroid?	Discover the concurrence of the medians of a triangle (the centroid) and its applications Explore length relationships among the segments into which the centroid divides each median	Investigations “Are Medians Concurrent?” and “Balancing Act” 5-6	1-4, 12
	NYSED Performance Indicators Addressed G.G.21 Investigate and apply the concurrence of medians, altitudes, angle bisectors, and perpendicular bisectors of triangles G.G.43 Investigate, justify, and apply theorems about the centroid of a triangle, dividing each median into segments whose lengths are in the ratio				

	2:1 G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.6 Use a variety of strategies to extend solution methods to other problems G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CN.1 Understand and make connections among multiple representations of the same mathematical idea G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.3 Use representation as a tool for exploring and understanding mathematical ideas				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 39	Chapter 3 Review			1-25	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 40	Chapter 3 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 41	Chapters 0-3 Cumulative Review			Mixed Review (page 196) 37-54, 62, 64	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester	Chapters 0-3 Summative Assessment			1-25	
	NYSED Performance Indicators Addressed				

	NYSED Performance Indicators Reinforced
--	--

NYC Pacing Guide for *Discovering Geometry* Chapter 4

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 43	4.1	How can I prove the sum of the angles of any triangle?	Discover and explain the sum of the measures of the angles of a triangle Develop inductive and deductive reasoning Practice using geometry tools	Investigation “The Triangle Sum” Developing Proof Activity (page 201) 2-7, 18	8-9, 14, 15, 19-24
	NYSED Performance Indicators Addressed G.G.30 Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other				

	<p>students' conjectures</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts</p> <p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons</p> <p>8.G.2 Identify pairs of supplementary and complementary angles</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
44 Semester 1: Day	4.2	What can I say about two sides of a triangle if I know that the two opposite angles are congruent?	<p>Discover a relationship between the base angles of an isosceles triangle.</p> <p>Learn new vocabulary</p> <p>Develop problem-solving skills and inductive reasoning</p> <p>Practice using construction tools</p>	<p>Investigations “Base Angles in an Isosceles Triangle” and “Is the Converse True?”</p> <p>1-6, 10</p>	7-9, 13, 14, 18-21, 24, 25
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.30 Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle</p>				

	<p>G.G.31 Investigate, justify, and apply the isosceles triangle theorem and its converse</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations)</p> <p>G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem</p> <p>G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>
	<p>NYSED Performance Indicators Reinforced</p> <p>G.G.62 Find the slope of a perpendicular line, given the equation of a line</p> <p>A.A.33 Determine the slope of a line, given the coordinates of two points on the line</p> <p>A.A.38 Determine if two lines are parallel, given their equations in any form</p>

Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 45	Using Your Algebra Skills 4	How can I use deductive reasoning to solve linear equations?	Review properties of real numbers and properties of equality Consider properties and techniques behind the steps of solving and checking linear equations Review the definition of a solution to an equation and steps in solving linear equations	Examples A and B 1-17 odd	2-16 even
	NYSED Performance Indicators Addressed G.RP.4 Provide correct mathematical arguments in response to other students' conjectures, reasoning, and arguments G.RP.6 Evaluate written arguments for validity G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students				
	NYSED Performance Indicators Reinforced 7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 46	4.3	What conjectures can I make regarding the relationship between the side lengths and angle measurements of a triangle?	Investigate inequalities among sides and angles in triangles Discover the Exterior Angle Conjecture Practice construction skills Develop reasoning skills	Investigations "What is the Shortest Path from A to B?", "Where are the Largest and Smallest Angles", and "Exterior	2-24 even

			Angles of a Triangle”	
			1-17 odd	
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.32 Investigate, justify, and apply theorems about geometric inequalities, using the exterior angle theorem</p> <p>G.G.33 Investigate, justify, and apply the triangle inequality theorem</p> <p>G.G.34 Determine either the longest side of a triangle given the three angle measures or the largest angle given the lengths of three sides of a triangle</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.9 Interpret solutions within the given constraints of a problem</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>			

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 47	4.4	Are there shortcuts for determining if triangles are congruent?	Explore shortcut methods for determining whether triangles are congruent Discover that SSS and SAS are valid congruence shortcuts, but SSA is not Practice construction skills	Investigations “Is SSS a Congruence Shortcut?”, “Is SAS a Congruence Shortcut?”, and “Is SSA a Congruence Shortcut?” 1-6, 15-17	7-10, 12-14, 23, 24, 26
	NYSED Performance Indicators Addressed G.G.28 Determine the congruence of two triangles by using one of the five congruence techniques (SSS, SAS, ASA, AAS, HL), given sufficient information about the sides and/or angles of two congruent triangles G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements G.CM.8 Reflect on strategies of others in relation to one’s own strategy G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 48	4.5	Are there any other shortcuts for determining if triangles are congruent?	<p>Explore shortcut methods for determining whether triangles are congruent</p> <p>Discover that ASA and SAA are valid congruence shortcuts but AAA is not</p> <p>Practice construction skills</p>	<p>Investigations “Is ASA a Congruence Shortcut?”, “Is SAA a Congruence Shortcut?”, and “Is AAA a Congruence Shortcut?”</p> <p>1-6, 16-18</p>	7-15, 24-27
	NYSED Performance Indicators Addressed <p>G.G.28 Determine the congruence of two triangles by using one of the five congruence techniques (SSS, SAS, ASA, AAS, HL), given sufficient information about the sides and/or angles of two congruent triangles</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements</p> <p>G.CM.8 Reflect on strategies of others in relation to one’s own strategy</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p>				

	G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 49	4.6	Which triangles can I prove congruent from what I know?	Show that pairs of angles or pairs of sides are congruent by identifying related triangles and proving them congruent, then apply CPCTC (Corresponding Parts of Congruent Triangles are Congruent) Practice deductive reasoning	Quiz, Lessons 4.1-4.3 Jigsaw 1-8 between groups	12-15, 18, 21
	NYSED Performance Indicators Addressed G.G.29 Identify corresponding parts of congruent triangles G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 50	4.7	How can I use a flowchart to organize a proof?	Create flowchart proofs Develop problem-solving skills Develop logical and visual thinking skills	Examples A and B Developing Proof Activity (page 239) 1-3	4, 5, 8-10, 13
	NYSED Performance Indicators Addressed G.G.27 Write a proof arguing from a given hypothesis to a given conclusion G.G.28 Determine the congruence of two triangles by using one of the five congruence techniques (SSS, SAS, ASA, AAS, HL), given sufficient information about the sides and/or angles of two congruent triangles G.G.29 Identify corresponding parts of congruent triangles G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.PS.6 Use a variety of strategies to extend solution methods to other problems G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)				

Facing	<p>G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.5 Construct logical arguments that verify claims or counterexamples that refute them</p>				
	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 51 and 52	4.8	How do the vertex angle bisector, median, and altitude of any isosceles triangle differ?	<p>Practice writing flowchart proofs</p> <p>Investigate vertex angle bisectors of isosceles triangles</p> <p>Use properties of isosceles triangles to find properties of equilateral triangles</p> <p>Develop logical and visual thinking skills</p>	<p>Quiz, Lessons 4.4-4.5</p> <p>Investigation “The Symmetry Line in an Isosceles Triangle”</p> <p>1-5</p>	6, 8, 9, 12, 16
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.27 Write a proof arguing from a given hypothesis to a given conclusion</p> <p>G.G.28 Determine the congruence of two triangles by using one of the five congruence techniques (SSS, SAS, ASA, AAS, HL), given sufficient information about the sides and/or angles of two congruent triangles</p> <p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.5 Present correct mathematical arguments in a variety of forms</p>				

	<p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.5 Construct logical arguments that verify claims or counterexamples that refute them</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 53	Exploration “Napoleon’s Theorem”	What is the relationship between the centroids of equilateral triangles constructed on the sides of any triangle?	Explore a relationship between the centroids of equilateral triangles constructed on the sides of any triangle.	Quiz, Lessons 4.6-4.8 Activity “Napoleon Triangles”	<i>Optional:</i> Project “Lines and Isosceles Triangles”
	<p>NYSED Performance Indicators Addressed</p> <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.CN.8 Develop an appreciation for the historical development of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p>				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 54	Chapter 4 Review			1-17, 25-26	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 55	Chapter 4 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 5

Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 56	5.1	How can I find the sum of angle measures for any polygon?	Discover the sum of the angle measures in a polygon Practice construction skills Develop reasoning, problem-solving skills, and cooperative behavior	Investigation “Is There a Polygon Sum Formula?” 1-5, 17	6-10, 12-14, 18, 20-21
	NYSED Content Strands G.G.30 Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle G.G.36 Investigate, justify, and apply theorems about the sum of the measures of the interior and exterior angles of polygons G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts G.CN.5 Understand how quantitative models connect to various physical models and representations G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				

	Reinforced Content Strands 7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 57	5.2	What is the sum of the measures of exterior angles of any polygon?	Discover the sum of the measures of the exterior angles of a polygon Write formulas for the measure of the interior angle of an equiangular polygon Practice construction skills Develop reasoning, problem-solving skills, and cooperative behavior	Investigation "Is There an Exterior Angle Sum?" 1-7	8-14, 16
	NYSED Content Strands G.G.32 Investigate, justify, and apply theorems about geometric inequalities, using the exterior angle theorem G.G.36 Investigate, justify, and apply theorems about the sum of the measures of the interior and exterior angles of polygons G.G.37 Investigate, justify, and apply theorems about each interior and exterior angle measure of regular polygons G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of				

	<p>mathematical visuals, symbols, and technical writing</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>Reinforced Content Strands</p> <p>7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons</p>				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 58	5.3	What properties can I conjecture about kites and trapezoids based on their definitions?	Discover properties of kites and trapezoids Learn new vocabulary Practice construction skills	<p>Quiz, Lessons 5.1-5.2</p> <p>Investigations “What Are Some Properties of Kites?” and “What Are Some Properties of Trapezoids?”</p> <p>1-3, 7, 9</p>	4-6, 8, 10-11, 19
	<p>NYSED Content Strands</p> <p>G.G.40 Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles, sides, medians, and diagonals</p>				

	<p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	Reinforced Content Strands				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
59 Semester 1: Day	5.4	How does the midsegment of a trapezoid relate to its bases?	Define and discover properties of midsegments in triangles and trapezoids Practice construction skills	Investigations “Triangle Midsegment Properties” and “Trapezoid Midsegment Properties” 1-3, 5, 6	4, 7-9, 12-16
	NYSED Content Strands G.G.40 Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles,				

	<p>sides, medians, and diagonals</p> <p>G.G.42 Investigate, justify, and apply theorems about geometric relationships, based on the properties of the line segment joining the midpoints of two sides of the triangle</p> <p>G.PS.9 Interpret solutions within the given constraints of a problem</p> <p>G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.8 Reflect on strategies of others in relation to one's own strategy</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p> <p>Reinforced Content Strands</p>				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day	5.5	What properties of a parallelogram can I conjecture knowing the definition of a parallelogram?	<p>Discover properties of parallelograms</p> <p>Learn new vocabulary related to vectors</p> <p>Practice construction skills</p> <p>Develop inductive reasoning and cooperative behavior</p>	<p>Investigation "Four Parallelograms Properties"</p> <p>1-3, 7, 8</p>	4-6, 13, 16-18

	NYSED Content Strands G.G.38 Investigate, justify, and apply theorems about parallelograms involving their angles, sides, and diagonals				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
	G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.CM.8 Reflect on strategies of others in relation to one's own strategy G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing G.R.2 Recognize, compare, and use an array of representational forms				
	Reinforced Content Strands				

Sem	Using Your Algebra Skills 5	How can I algebraically express	Review the relationship between the constant term in a linear equation of the form $y = a + bx$ or	Quiz, Lessons 5.3-5.5	1-13 odd
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Day 61	5.6	What properties of squares, rectangles,	equation in intercept (or slope-intercept) form Discover properties of rectangles, rhombuses, and squares Write a linear equation from the graph of a line	Investigations "What Can You	11-16, 18, 26, 28-31
	NYSED Content Strands G.G.64 Find the equation of a line, given a point on the line and the equation of a line perpendicular to the given line G.G.68 Find the equation of a line that is the perpendicular bisector of a line segment, given the endpoints of the line segment G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.R.2 Recognize, compare, and use an array of representational forms				
	Reinforced Content Strands A.A.34 Write the equation of a line, given its slope and the coordinates of a point on the line A.A.35 Write the equation of a line, given the coordinates of two points on the line A.A.37 Determine the slope of a line, given its equation in any form				

		and rhombuses can I conjecture knowing the definition of a parallelogram?	Practice construction skills	Draw with the Double-Edge Straightedge?”, “Do Rhombus Diagonals Have Special Properties?” and “Do Rectangle Diagonals Have Special Properties?”	
				1-10	
<p>NYSED Content Strands</p> <p>G.G.38 Investigate, justify, and apply theorems about parallelograms involving their angles, sides, and diagonals</p> <p>G.G.39 Investigate, justify, and apply theorems about special parallelograms (rectangles, rhombuses, squares) involving their angles, sides, and diagonals</p> <p>G.G.41 Justify that some quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic)</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements</p> <p>G.CM.8 Reflect on strategies of others in relation to one’s own strategy</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p>					

	Reinforced Content Strands				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 63	5.7	What are some different strategies for approaching proof?	Practice writing flowchart and paragraph proofs Develop deductive reasoning skills Review properties of quadrilaterals	Investigation “Finding the Square Route” 2-8 even	1-9 odd, 12-14
	NYSED Content Strands G.G.27 Write a proof arguing from a given hypothesis to a given conclusion G.G.38 Investigate, justify, and apply theorems about parallelograms involving their angles, sides, and diagonals G.G.39 Investigate, justify, and apply theorems about special parallelograms (rectangles, rhombuses, squares) involving their angles, sides, and diagonals G.G.40 Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles, sides, medians, and diagonals G.G.41 Justify that some quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.RP.5 Present correct mathematical arguments in a variety of forms				

	G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
	Reinforced Content Strands A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.5 Construct logical arguments that verify claims or counterexamples that refute them				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day 64	Chapter 5 Review			1-13, 15, 17	21-27
	NYSED Content Strands				
	Reinforced Content Strands				
Pacing	Chapter/Lesson/Unit	Lesson Aim for Topic	Objectives for Aim	Suggested Classwork	Suggested Homework
Semester 1: Day	Chapter 5 Test				
	NYSED Content Strands				
	Reinforced Content Strands				

NYC Pacing Guide for *Discovering Geometry* Chapter 6

Semester 1: Day 66	6.1	What is the relationship between the tangent of a circle and the radius?	Review basic properties of a circle and circle vocabulary Discover properties of tangents of circles Explore common tangents and tangent circles Learn applications of tangents Learn new vocabulary Practice construction skills	Investigations “Going Off on a Tangent” and “Tangent Segments” 5, 8-12	1-4, 16-18, 21
	NYSED Performance Indicators Addressed G.G.50 Investigate, justify, and apply theorems about tangent lines to a circle: <ul style="list-style-type: none"> ○ a perpendicular to the tangent at the point of tangency ○ two tangents to a circle from the same external point ○ common tangents of two non-intersecting or tangent circles G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				
	NYSED Performance Indicators Reinforced 6.G.5 Identify radius, diameter, chords and central angles of a circle 6.G.6 Understand the relationship between the diameter and radius of a circle				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 67	6.2	What are the relationships between chords and circles?	Discover properties of chords to a circle Learn new vocabulary Practice construction skills	Investigations “Defining Angles in a Circle”, “Chords and Their Central Angles”, “Chords and the Center of the Circle”, and “Perpendicular Bisector of a Chord” 1-9	10-13, 15, 20, 22, 28
	NYSED Performance Indicators Addressed G.G.49 Investigate, justify, and apply theorems regarding chords of a circle: <ul style="list-style-type: none"> ○ perpendicular bisectors of chords ○ the relative lengths of chords as compared to their distance from the center of the circle G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing				

	G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				
	NYSED Performance Indicators Reinforced 6.G.5 Identify radius, diameter, chords and central angles of a circle 7.M.8 Draw central angles in a given circle using a protractor (circle graphs)				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 68 and 69	6.3	What is the relationship between any angle inscribed in a circle and its intercepted arc?	Discover relationships between an inscribed angle of a circle and its intercepted arc	Investigations “Inscribed Angle Properties”, “Inscribed Angles Intercepting the Same Arc”, “Angles Inscribed in a Semicircle”, “Cyclic Quadrilaterals”, and “Arcs by Parallel Lines” 1-8	9-17, 22, 24
	NYSED Performance Indicators Addressed G.G.51 Investigate, justify, and apply theorems about the arcs determined by the rays of angles formed by two lines intersecting a circle when the vertex is: <ul style="list-style-type: none"> ○ inside the circle (two chords) ○ on the circle (tangent and chord) ○ outside the circle (two tangents, two secants, or tangent and secant) 				

	<p>G.G.52 Investigate, justify, and apply theorems about arcs of a circle cut by two parallel lines</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CM.12 Draw conclusions about mathematical ideas through decoding, comprehension, and interpretation of mathematical visuals, symbols, and technical writing</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>6.G.5 Identify radius, diameter, chords and central angles of a circle</p> <p>7.M.8 Draw central angles in a given circle using a protractor (circle graphs)</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1:	6.4	How can I prove the circle conjectures from the previous lesson?	Review properties of inscribed angles and polygons Practice flowchart proofs	Developing Proof Activities (page 331) 1-4	5-8, 10-19

	<p>NYSED Performance Indicators Addressed</p> <p>G.G.27 Write a proof arguing from a given hypothesis to a given conclusion</p> <p>G.G.51 Investigate, justify, and apply theorems about the arcs determined by the rays of angles formed by two lines intersecting a circle when the vertex is:</p> <ul style="list-style-type: none"> ○ inside the circle (two chords) ○ on the circle (tangent and chord) ○ outside the circle (two tangents, two secants, or tangent and secant) <p>G.G.52 Investigate, justify, and apply theorems about arcs of a circle cut by two parallel lines</p> <p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.5 Present correct mathematical arguments in a variety of forms</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.5 Construct logical arguments that verify claims or counterexamples that refute them</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1:	6.5	What is the ratio of the circumference of a circle to its diameter?	Calculate π , the ratio of the circumference of a circle to its diameter	Quiz, Lessons 6.1-6.4 Investigation “A Taste of Pi”	7-12, 16-18

			1-6	
<p>NYSED Performance Indicators Addressed</p> <p>G.G.51 Investigate, justify, and apply theorems about the arcs determined by the rays of angles formed by two lines intersecting a circle when the vertex is:</p> <ul style="list-style-type: none"> ○ inside the circle (two chords) ○ on the circle (tangent and chord) ○ outside the circle (two tangents, two secants, or tangent and secant) <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures</p> <p>G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations</p> <p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.CN.8 Develop an appreciation for the historical development of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p>				
<p>NYSED Performance Indicators Reinforced</p> <p>6.G.6 Understand the relationship between the diameter and radius of a circle</p>				

	6.G.7 Determine the area and circumference of a circle, using the appropriate formula 6.G.9 Understand the relationship between the circumference and the diameter of a circle 7.G.1 Calculate the radius or diameter, given the circumference or area of a circle				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 72	6.6	How can I use the formula for the circumference of a circle to solve problems?	Apply the formula for the circumference of a circle Practice visual thinking	Example 1-5	6-10, 13, 14
	NYSED Performance Indicators Addressed G.G.51 Investigate, justify, and apply theorems about the arcs determined by the rays of angles formed by two lines intersecting a circle when the vertex is: <ul style="list-style-type: none"> ○ inside the circle (two chords) ○ on the circle (tangent and chord) ○ outside the circle (two tangents, two secants, or tangent and secant) G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.4 Select appropriate representations to solve problem situations G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				

	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 73	Using Your Algebra Skills 6	How can I use different methods for solving systems of linear equations?	Review solving systems of linear equations by substitution and elimination Algebraically derive a property of intersecting secants through a circle Algebraically find the circumcenter of a triangle	Examples A-C 1-3, 11, 12	4-7, 9, 13, 14
	NYSED Performance Indicators Addressed G.CM.4 Explain relationships among different representations of a problem G.CN.1 Understand and make connections among multiple representations of the same mathematical idea G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics G.R.5 Investigate relationships between different representations and their impact on a given problem				
	NYSED Performance Indicators Reinforced A.A.7 Analyze and solve verbal problems whose solution requires solving systems of linear equations in two variables A.A.10 Solve systems of two linear equations in two variables algebraically A.G.7 Graph and solve systems of linear equations and inequalities with rational coefficients in two variables A.G.10 Solve systems of linear and quadratic equations graphically				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework

Semester 1: Day 74	6.7	How do I find the length of the arc of a circle?	Discover a formula for finding the length of an arc of a circle Apply the formula for arc length	Investigation “Finding the Arcs” Examples A-C 1-5, 11	6-9, 15, 17
	NYSED Performance Indicators Addressed G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.CM.8 Reflect on strategies of others in relation to one’s own strategy G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				
	NYSED Performance Indicators Reinforced 6.G.5 Identify radius, diameter, chords and central angles of a circle 7.M.8 Draw central angles in a given circle using a protractor (circle graphs) 6.G.6 Understand the relationship between the diameter and radius of a circle 6.G.7 Determine the area and circumference of a circle, using the appropriate formula 6.G.9 Understand the relationship between the circumference and the diameter of a circle				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
--------	--------	--------------------	-------------------	---------------------	--------------------

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 75	Exploration “Intersecting Lines Through a Circle”	What relationships exist between the angles formed by intersecting tangents, secants, or chords and the arcs of a circle?	Explore the relationships exist between the angles formed by intersecting tangents, secants, or chords and the arcs of a circle? Consolidate the conjectures made about circle angles and arcs into a unifying relationship	Activities “Exploring Secants and Chords” and “Exploring Tangents”	
	NYSED Performance Indicators Addressed G.G.53 Investigate, justify, and apply theorems regarding segments intersected by a circle: <ul style="list-style-type: none"> ○ along two tangents from the same external point ○ along two secants from the same external point ○ along a tangent and a secant from the same external point ○ along two intersecting chords of a given circle G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 76	Chapter 6 Review			1-31 odd	2-30 even
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

Semester 1 : Day 77	Chapter 6 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 7

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 78	7.1	What are the different types of transformations and how can I connect transformations with symmetry?	Learn about transformations Identify and create translations, rotations, and reflections of figures in the plane Apply concepts of reflectional, rotational, and translational symmetry Discover symmetries of regular polygons Learn new vocabulary Develop visual thinking and problem-solving skills	Investigation “The Basic Property of a Reflection” 1-6, 9	7-8, 12-14, 20-22
	NYSED Performance Indicators Addressed G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) G.G.55 Investigate, justify, and apply the properties that remain invariant under translations, rotations, reflections, and glide reflections G.G.57 Justify geometric relationships (perpendicularity, parallelism, congruence) using transformational techniques (translations, rotations, reflections) G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students’ conjectures G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams				

	<p>G.CN.8 Develop an appreciation for the historical development of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>8.G.7 Describe and identify transformations in the plane, using proper function notation (rotations, reflections, translations, and dilations)</p> <p>8.G.8 Draw the image of a figure under rotations of 90 and 180 degrees</p> <p>8.G.9 Draw the image of a figure under a reflection over a given line</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 79	7.2	How can I use ordered pair rules to do transformations on the coordinate plane?	Find a minimal path using reflections Develop visual thinking and problem-solving skills Learn vector notation	Investigations “Transformations on a Coordinate Plane” and “Finding a Minimal Path” 1-6	7-11, 16-18, 21-22
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)</p> <p>G.G.56 Identify specific isometries by observing orientation, numbers of invariant points, and/or parallelism</p> <p>G.G.61 Investigate, justify, and apply the analytical representations for translations, rotations about the origin of 90° and 180°, reflections over the lines $x = 0$, $y = 0$, and $y = x$, and dilations centered at the origin</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables,</p>				

	<p>formulas, functions, equations, charts, graphs, and diagrams</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>8.G.7 Describe and identify transformations in the plane, using proper function notation (rotations, reflections, translations, and dilations)</p> <p>8.G.10 Draw the image of a figure under a translation</p> <p>8.G.12 Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 80	7.3	How does the reflection of a figure across parallel or perpendicular lines affect a figure.	<p>Discover the result of reflecting a figure across two parallel lines</p> <p>Discover the result of reflecting a figure across two intersecting lines</p> <p>Learn about glide reflections</p> <p>Develop visual thinking</p>	<p>Quiz, Lessons 7.1-7.2</p> <p>Investigations "Reflections Across Two Parallel Lines" and "Reflections Across Two Intersecting Lines"</p> <p>1-5</p>	9-11, 14-17
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)</p>				

	<p>G.G.58 Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries)</p> <p>G.PS.2 Observe and explain patterns to formulate generalizations and conjectures</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>NYSED Performance Indicators Reinforced</p> <p>8.G.9 Draw the image of a figure under a reflection over a given line</p> <p>8.G.7 Describe and identify transformations in the plane, using proper function notation (rotations, reflections, translations, and dilations)</p> <p>8.G.10 Draw the image of a figure under a translation</p> <p>8.G.12 Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 81	7.4	How can I identify different types of tessellations?	<p>Learn about tessellations of regular polygons</p> <p>Classify and identify monohedral, regular, and semiregular tessellations</p> <p>Learn new vocabulary</p> <p>Develop visual thinking</p>	<p>Investigation “The Semiregular Tessellations”</p> <p>1-5</p>	6-10, 16-18
	<p>NYSED Performance Indicators Addressed</p> <p>G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form</p> <p>G.CN.1 Understand and make connections among multiple representations of the same mathematical idea</p>				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 82	7.5	Which nonregular polygons can tessellate on a plane?	Explore tessellations with nonregular polygons Practice construction skills Develop visual and creative thinking, problem-solving skills, and cooperative behavior	Investigations “Do All Triangles Tessellate?” and “Do All Quadrilaterals Tessellate?” 1-4	5-8
	NYSED Performance Indicators Addressed G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 83	7.6	How can I make Escher-type translation tessellations?	Create Escher-type translation tessellations Develop visual and creative thinking	1-3, 7-8	4-6, 11-15
	NYSED Performance Indicators Addressed G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
84 Semester 1: Day	7.7	How do I create Escher-type tessellations with rotations?	Create Escher-type rotation tessellations Develop visual and creative thinking	3-4	1-2, 8-12
	NYSED Performance Indicators Addressed G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) G.PS.2 Observe and explain patterns to formulate generalizations and conjectures				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 85	7.8	How do I create Escher-type tessellations with rotations?	Create Escher-type rotation tessellations Develop visual and creative thinking	3-4	1-2, 6-7, 9-10
	NYSED Performance Indicators Addressed G.G.54 Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections) <i>Note: Use proper function notation</i> G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 86	Using Your Algebra Skills 7	How can I use algebra to find a triangle's orthocenter and centroid?	Use algebra to find the coordinates of a triangle's orthocenter Use algebra to find the coordinates of a triangle's centroid	Examples A and B 1-4	5-7
	NYSED Performance Indicators Addressed G.G.21 Investigate and apply the concurrence of medians, altitudes, angle bisectors, and perpendicular bisectors of triangles G.G.43 Investigate, justify, and apply theorems about the centroid of a triangle, dividing each median into segments whose lengths are in the ratio 2:1 G.CN.1 Understand and make connections among multiple representations of the same mathematical idea				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 87	Chapter 7 Review			1-15, 23-27	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 88	Chapter 7 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 89	Semester Review			Mixed Review (pages 362-365) 34-70	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 1: Day 90	Semester Final Exam				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 8

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 1	8.1	How is area defined and how can I determine the area of rectangles and parallelograms?	Develop the concept of area Derive formulas for the areas of a rectangle and a parallelogram Apply area formulas to solve problems Review vocabulary	Investigation “Area Formula for Parallelograms” 1-3, 7, 8, 11, 12	4-6, 9, 10, 13-15, 21-23, 27-29
	NYSED Performance Indicators Addressed				
	G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations)				
	G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams				
Semester 2: Day 2	G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics				
	NYSED Performance Indicators Reinforced				
	6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas				
	6.G.3 Use a variety of strategies to find the area of regular and irregular polygons				
Semester 2: Day 2	A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 2	8.2	How can I use the area formula to solve problems?	Derive formulas for the areas of triangles, trapezoids, and kites Apply area formulas to solve problems Develop cooperative behavior	Investigations “Area Formula for Triangles”, Area Formula for Trapezoids”, and “Area Formula for Kites”	7-14, 18, 23-26, 29

				1-6	
	<p>NYSED Performance Indicators Addressed</p> <p>G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem</p> <p>G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)</p> <p>NYSED Performance Indicators Reinforced</p> <p>6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas</p> <p>6.G.3 Use a variety of strategies to find the area of regular and irregular polygons</p> <p>A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 3	8.3	How can I use the area formula to solve problems?	Practice measuring Practice estimation Solve area application problems using various problem-solving strategies Develop reading comprehension and cooperative behavior	Quiz, Lessons 8.1-8.2 Investigation "Solving Problems with Area Formulas" 5, 9	1-4, 8, 11, 12
	<p>NYSED Performance Indicators Addressed</p> <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric,</p>				

	<p>algebraic, and graphical representations)</p> <p>G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic)</p> <p>G.PS.6 Use a variety of strategies to extend solution methods to other problems</p> <p>G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving</p> <p>G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form</p> <p>G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students</p> <p>G.CM.8 Reflect on strategies of others in relation to one's own strategy</p> <p>G.R.4 Select appropriate representations to solve problem situations</p> <p>G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas</p> <p>6.G.3 Use a variety of strategies to find the area of regular and irregular polygons</p> <p>A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester	Using Your Algebra Skills 8	How can I use diagrams to factor quadratic expressions?	Use rectangle diagrams to factor quadratic expressions Apply the zero-product property to solve quadratic equations	Examples A-C 1-3, 7-12, 23	4-6, 13-22

	NYSED Performance Indicators Addressed G.CN.1 Understand and make connections among multiple representations of the same mathematical idea G.R.2 Recognize, compare, and use an array of representational forms				
	NYSED Performance Indicators Reinforced A.A.20 Factor algebraic expressions completely, including trinomials with a lead coefficient of one (after factoring a GCF)				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 5	8.4	How do I find the area of a regular polygon?	Derive the formula for the area of a regular polygon Apply area formulas to solve problems Learn new vocabulary Clarify approximation concepts Develop problem-solving skills and cooperative behavior	Investigation “Area Formula for Regular Polygons” 1-6	7-8, 10-11, 19-21
	NYSED Performance Indicators Addressed G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams				
	NYSED Performance Indicators Reinforced 6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas 6.G.3 Use a variety of strategies to find the area of regular and irregular polygons A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2:	8.5	How can I use the formula for the area of a circle to solve problems?	Derive the formula for the area of a circle Apply area formulas to solve problems Develop cooperative behavior	Investigation “Area Formula for Circles” 1-4	5-11, 17, 18, 20

Pacing Semester 2: Day 7	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced 6.G.7 Determine the area and circumference of a circle, using the appropriate formula A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle				
	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Pacing Semester 2: Day 7	8.6	How can I use the formula for the area of a circle to find the area of other shapes?	Discover formulas and methods for calculating the area of annuluses, sectors, and segments of circles Learn new vocabulary Develop problem-solving skills and cooperative behavior	Quiz, Lessons 8.3-8.4 1-6	7-12, 17-23
	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures				

	<p>G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem</p> <p>G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>6.G.7 Determine the area and circumference of a circle, using the appropriate formula</p> <p>A.G.1 Find the area and/or perimeter of figures composed of polygons and circles or sectors of a circle</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 8	8.7	How can I determine the surface area of different solids?	<p>Review terminology for solids</p> <p>Discover methods for finding the surface areas of solids</p> <p>Practice visual thinking in three dimensions</p> <p>Develop problem-solving skills and cooperative behavior</p>	<p>Investigations</p> <p>“Surface Area of a Regular Pyramid” and “Surface Area of a Cone”</p> <p>1-6</p>	7-11, 14, 15, 17
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.14 Apply the properties of a cylinder, including:</p> <ul style="list-style-type: none"> ○ bases are congruent ○ volume equals the product of the area of the base and the altitude ○ lateral area of a right circular cylinder equals the product of an altitude and the circumference of the base 				

	<p>G.G.15 Apply the properties of a right circular cone, including:</p> <ul style="list-style-type: none"> ○ lateral area equals one-half the product of the slant height and the circumference of its base ○ volume is one-third the product of the area of its base and its altitude <p>G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.G.4 Determine the surface area of prisms and cylinders, using a calculator and a variety of methods</p> <p>A.G.2 Use formulas to calculate volume and surface area of rectangular solids and cylinders</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 9	Chapter 8 Review			1-47 odd	2-42 even
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
es	Chapter 8 Test				

	NYSED Performance Indicators Addressed
	NYSED Performance Indicators Reinforced

NYC Pacing Guide for *Discovering Geometry* Chapter 9

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 11	9.1	How can I use the Pythagorean Theorem to find the lengths of sides of a right triangle?	Understand the Pythagorean Theorem more deeply Practice using geometry tools Learn new vocabulary	Investigation “The Three Sides of a Right Triangle” 1-6	7-16, 18, 19-22
	NYSED Performance Indicators Addressed G.G.27 Write a proof arguing from a given hypothesis to a given conclusion G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CM.4 Explain relationships among different representations of a problem				

	<p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p> <p>G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams</p> <p>G.CN.1 Understand and make connections among multiple representations of the same mathematical idea</p> <p>G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations</p> <p>G.CN.8 Develop an appreciation for the historical development of mathematics</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle</p> <p>7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem</p> <p>7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle</p> <p>7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 12	9.2	How can I derive the converse of the Pythagorean Theorem?	<p>Discover the Converse of the Pythagorean Theorem</p> <p>Learn new vocabulary</p> <p>Develop reading comprehension, problem-solving skills, and cooperative behavior</p>	<p>Investigation “Is the Converse True?”</p> <p>1-6</p>	7-15, 18-20, 22
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.27 Write a proof arguing from a given hypothesis to a given conclusion</p> <p>G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse</p>				

	<p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion</p> <p>G.RP.5 Present correct mathematical arguments in a variety of forms</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CM.8 Reflect on strategies of others in relation to one's own strategy</p> <p>G.CM.10 Use correct mathematical language in developing mathematical questions that elicit, extend, or challenge other students' conjectures</p> <p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.CN.8 Develop an appreciation for the historical development of mathematics</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle</p> <p>7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem</p> <p>7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle</p> <p>7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework

Semester 2: Day 13	Using Your Algebra Skills 9	How do I represent radical expressions geometrically?	Learn to represent radical expressions geometrically Learn to simplify square roots Learn to multiply radical expressions	Quiz, Lessons 9.1-9.2 1-10	11-18
	NYSED Performance Indicators Addressed G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations)				
	NYSED Performance Indicators Reinforced A.N.2 Simplify radical terms (no variable in the radicand) A.N.3 Perform the four arithmetic operations using like and unlike radical terms and express the result in simplest form				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 14	9.3	What is the meaning and significance of special right triangles?	Practice simplifying square roots Discover relationships among the lengths of the sides of a 45°-45°-90° and a 30°-60°-90° triangle Develop problem-solving skills and cooperative behavior	Investigations “Isosceles Right Triangles” and “30°-60°-90° Triangles” 1-6	7-11, 15-16, 23-24
	NYSED Performance Indicators Addressed G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.PS.6 Use a variety of strategies to extend solution methods to other problems G.CM.4 Explain relationships among different representations of a problem G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid				

	G.CM.8 Reflect on strategies of others in relation to one's own strategy				
	G.CM.9 Formulate mathematical questions that elicit, extend, or challenge strategies, solutions, and/or conjectures of others				
	NYSED Performance Indicators Reinforced 7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle 7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem 7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle 7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 15	9.4	How do I solve problems using the Pythagorean Theorem?	Apply the Pythagorean Theorem and its converse Develop reading comprehension and problem-solving skills	1-4	5-7, 9, 13-18
	NYSED Performance Indicators Addressed G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic) G.PS.6 Use a variety of strategies to extend solution methods to other problems G.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations				
	NYSED Performance Indicators Reinforced 7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle 7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem 7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle 7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 16	9.5	How can I use the Pythagorean Theorem to find the distance formula?	Discover the Pythagorean relationship on a coordinate plane (the distance formula) Write the equation of a circle Use the distance formula to solve problems Develop problem-solving skills and cooperative behavior	Quiz, Lessons 9.3-9.4 Investigation "The Distance Formula" 1-4	7-12, 19-21
	NYSED Performance Indicators Addressed G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse G.G.67 Find the length of a line segment, given its endpoints G.G.71 Write the equation of a circle, given its center and radius or given the endpoints of a diameter G.G.72 Write the equation of a circle, given its graph G.G.73 Find the center and radius of a circle, given the equation of the circle in center-radius form G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CN.2 Understand the corresponding procedures for similar problems or mathematical concepts				
	NYSED Performance Indicators Reinforced 7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle 7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem				

	7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle 7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 17	9.6	How can I use the Pythagorean Theorem to solve problems involving circles?	Apply the Pythagorean relationship to problems involving circles	Examples A and B 1-8	10-11, 15, 17-19, 22
	NYSED Performance Indicators Addressed G.G.48 Investigate, justify, and apply the Pythagorean theorem and its converse G.G.71 Write the equation of a circle, given its center and radius or given the endpoints of a diameter G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.CM.8 Reflect on strategies of others in relation to one's own strategy G.CM.9 Formulate mathematical questions that elicit, extend, or challenge strategies, solutions, and/or conjectures of others				
	NYSED Performance Indicators Reinforced 7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle 7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem 7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle 7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
1 day	Chapter 9 review			Quiz, Lessons	2-28 even

				9.5-9.6	
				Chapter Review 1-29 odd	
	<p>NYSED Performance Indicators Addressed</p> <p>NYSED Performance Indicators Reinforced</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 20	Chapter 9 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 10

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 21	10.1	How do I differentiate between the different types of solids?	Learn the vocabulary of polyhedrons – prisms and pyramids in particular Learn the vocabulary of spheres, cylinders, and cones Practice three-dimensional visual thinking skills	1-9, 23-26, 36	10-22, 27-35, 38-41
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.10 Know and apply that the lateral edges of a prism are congruent and parallel</p> <p>G.G.13 Apply the properties of a regular pyramid, including:</p> <ul style="list-style-type: none"> ○ lateral edges are congruent ○ lateral faces are congruent isosceles triangles ○ volume of a pyramid equals one-third the product of the area of the base and the altitude <p>G.G.14 Apply the properties of a cylinder, including:</p> <ul style="list-style-type: none"> ○ bases are congruent ○ volume equals the product of the area of the base and the altitude ○ lateral area of a right circular cylinder equals the product of an altitude and the circumference of the base <p>G.G.15 Apply the properties of a right circular cone, including:</p> <ul style="list-style-type: none"> ○ lateral area equals one-half the product of the slant height and the circumference of its base ○ volume is one-third the product of the area of its base and its altitude <p>G.G.16 Apply the properties of a sphere, including:</p> <ul style="list-style-type: none"> ○ the intersection of a plane and a sphere is a circle ○ a great circle is the largest circle that can be drawn on a sphere ○ two planes equidistant from the center of the sphere and intersecting the sphere do so in congruent circles ○ surface area is $4\pi r^2$ ○ volume is $\frac{4}{3}\pi r^3$ 				

	G.RP.8 Devise ways to verify results or use counterexamples to refute incorrect statements				
	G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts				
	NYSED Performance Indicators Reinforced 7.G.3 Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones, and pyramids)				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 22	Exploration “Euler’s Formula for Polyhedrons”	How can I determine the relationship between the number of vertices, edges, and faces of a polyhedron?	Build polyhedrons Find a pattern in the number of faces, edges, and vertices of polyhedrons	Activity “Toothpick Polyhedrons”	
	NYSED Performance Indicators Addressed G.CN.5 Understand how quantitative models connect to various physical models and representations G.CN.8 Develop an appreciation for the historical development of mathematics G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.2 Recognize, compare, and use an array of representational forms G.R.3 Use representation as a tool for exploring and understanding mathematical ideas G.R.4 Select appropriate representations to solve problem situations				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 23	10.2	How do I calculate the volume of a prism or cylinder?	Discover formulas for finding the volumes of prisms and cylinders Practice three-dimensional visual thinking skills Develop problem-solving skills and cooperative behavior	Investigation “The Volume Formula for Prisms and Cylinders” 1-6	7-13, 18-22, 25
	NYSED Performance Indicators Addressed G.G.11 Know and apply that two prisms have equal volumes if their bases have equal areas and their altitudes are equal G.G.13 Apply the properties of a regular pyramid, including: <ul style="list-style-type: none"> o lateral edges are congruent o lateral faces are congruent isosceles triangles o volume of a pyramid equals one-third the product of the area of the base and the altitude G.G.14 Apply the properties of a cylinder, including: <ul style="list-style-type: none"> o bases are congruent o volume equals the product of the area of the base and the altitude o lateral area of a right circular cylinder equals the product of an altitude and the circumference of the base G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students				
	NYSED Performance Indicators Reinforced 7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator A.G.2 Use formulas to calculate volume and surface area of rectangular solids and cylinders				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 24	10.3	How do I calculate the volume of a pyramid or cone?	Discover formulas for the volumes of pyramids and cones Practice three-dimensional visual thinking skills Develop problem-solving skills and cooperative behavior	Investigation “The Volume Formula for Pyramids and Cones” 1-6	7-12, 21-23
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.13 Apply the properties of a regular pyramid, including:</p> <ul style="list-style-type: none"> ○ lateral edges are congruent ○ lateral faces are congruent isosceles triangles ○ volume of a pyramid equals one-third the product of the area of the base and the altitude <p>G.G.15 Apply the properties of a right circular cone, including:</p> <ul style="list-style-type: none"> ○ lateral area equals one-half the product of the slant height and the circumference of its base ○ volume is one-third the product of the area of its base and its altitude <p>G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams</p> <p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p> <p>NYSED Performance Indicators Reinforced</p> <p>7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator</p> <p>A.G.2 Use formulas to calculate volume and surface area of rectangular solids and cylinders</p>				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 25	Exploration “The Five Platonic Solids”	How can I determine the solid formed by a net?	Learn about Platonic solids Deepen understanding of nets Improve visual thinking	Quiz, Lessons 10.1-10.3 Activity “Modeling the Platonic Solids”	
	NYSED Performance Indicators Addressed G.G.13 Apply the properties of a regular pyramid, including: <ul style="list-style-type: none"> ○ lateral edges are congruent ○ lateral faces are congruent isosceles triangles ○ volume of a pyramid equals one-third the product of the area of the base and the altitude G.CN.8 Develop an appreciation for the historical development of mathematics G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.2 Recognize, compare, and use an array of representational forms				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2:	10.4	How can I use the volume formulas to solve problems?	Solve applied problems involving polyhedrons, cones, cylinders, spheres, or hemispheres Practice three-dimensional visual thinking skills Develop reading comprehension and problem-solving skills	Examples A and B 1-6	7-11, 15-18, 21

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 28	Exploration “Orthographic Drawing” <ul style="list-style-type: none"> Volume equals the product of the area of the base and the altitude lateral area of a right circular cylinder equals the product of an altitude and the circumference of the base G.G.15 Apply the properties of a right circular cone, including: <ul style="list-style-type: none"> lateral area equals one-half the product of the slant height and the circumference of its base volume is one-third the product of the area of its base and its altitude 	How do I create orthographic drawings?	Do isometric and orthographic drawings Enhance visualization skills	Quiz, Lessons 10.4, 10.5 Activity “Isometric and Orthographic Drawings”	
	G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.4 Select appropriate representations to solve problem situations G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced 7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator A.G.2 Use formulas to calculate volume and surface area of rectangular solids and cylinders				

	NYSED Performance Indicators Addressed G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.2 Recognize, compare, and use an array of representational forms				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 29	10.6	How do I calculate the volume of a sphere?	Derive the formula for the volume of a sphere Apply volume formulas to problems involving spheres or hemispheres Practice three-dimensional visual thinking skills Develop problem-solving skills	Investigation “The Formula for the Volume of a Sphere” 1-6, 9	10-12, 15, 20, 23
	NYSED Content Strands G.G.16 Apply the properties of a sphere, including: <ul style="list-style-type: none"> the intersection of a plane and a sphere is a circle a great circle is the largest circle that can be drawn on a sphere two planes equidistant from the center of the sphere and intersecting the sphere do so in congruent circles surface area is $4\pi r^2$ volume is $\frac{4}{3}\pi r^3$ G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams				

	<p>G.CN.5 Understand how quantitative models connect to various physical models and representations</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.3 Use representation as a tool for exploring and understanding mathematical ideas</p> <p>G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)</p> <p>NYSED Performance Indicators Reinforced</p> <p>7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator</p> <p>A.G.2 Use formulas to calculate volume and surface area of rectangular solids and cylinders</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 30	10.7	How do I calculate the surface area of a sphere?	<p>Derive the formula for the surface area of a sphere</p> <p>Apply the surface area formula to solve problems</p> <p>Practice three-dimensional visual thinking skills</p> <p>Develop reading comprehension, problem-solving skills, and cooperative behavior</p>	<p>Investigation “The Formula for the Surface Area of a Sphere”</p> <p>1-4, 9</p>	5-7, 15-18, 20, 21
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.16 Apply the properties of a sphere, including:</p> <ul style="list-style-type: none"> the intersection of a plane and a sphere is a circle a great circle is the largest circle that can be drawn on a sphere two planes equidistant from the center of the sphere and intersecting the sphere do so in congruent circles surface area is $4\pi r^2$ volume is $\frac{4}{3}\pi r^3$ 				

	<p>G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>7.G.2 Calculate the volume of prisms and cylinders, using a given formula and a calculator</p> <p>7.G.4 Determine the surface area of prisms and cylinders, using a calculator and a variety of methods</p> <p>A.G.2 Use formulas to calculate volumen and surface area of rectangular solids and cylinders</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 31	Using Your Algebra Skills 10	How do I solve equations for different variables?	Solve equations for different variables	Quiz, Lessons 10.6-10.7 1-6	7-12
	NYSED Performance Indicators Addressed				
	<p>NYSED Performance Indicators Reinforced</p> <p>A.A.20 Solve all types of linear equations in one variable</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2:	Exploration “Sherlock Holmes and Forms of Valid Reasoning”	How can I use logical reasoning to distinguish between the truth and validity of an argument?	Use the forms of logical reasoning <i>Modus Ponens</i> and <i>Modus Tollens</i> Learn some symbols used in formal logic Distinguish between the validity and the truth of an argument	Activity “It’s Elementary”	

	NYSED Performance Indicators Addressed G.G.24 Determine the negation of a statement and establish its truth value G.G.25 Know and apply the conditions under which a compound statement (conjunction, disjunction, conditional, biconditional) is true G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.2 Recognize, compare, and use an array of representational forms G.R.7 Use mathematics to show and understand social phenomena (e.g., determine if conclusions from another person's argument have a logical foundation)				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
e s	Chapter 10 Review			1-27 odd	2-28 even

	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 34	Chapter 10 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 11

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 35	Using Your Algebra Skills 11	How can I use proportional reasoning to solve problems?	Learn or review the meanings of ratio and proportion Practice solving proportions Use ratios and proportions to solve word problems Develop reading comprehension, problem-solving skills, and cooperative behavior	Examples A and B 1-6	7-12, 16-17
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced 6.A.5 Solve simple proportions within context A.A.25 Solve equations involving fractional expressions A.A.26 Solve algebraic proportions in one variable which result in linear or quadratic equations				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 36 and 37	11.1	How do I determine if polygons are similar?	Develop an intuitive concept of similarity Define similar polygons Use the definition of similar polygons to solve problems Develop problem-solving skills and cooperative behavior	Investigations “What Makes Polygons Similar?” and “Dilations on the Coordinate Plane” 1-6	7-14
	NYSED Performance Indicators Addressed G.G.58 Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries) G.G.59 Investigate, justify, and apply the properties that remain invariant under similarities				

	G.G.60 Identify specific similarities by observing orientation, numbers of invariant points, and/or parallelism				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
	<p>solving</p> <p>G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies</p> <p>G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures</p> <p>G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form</p> <p>G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work</p> <p>G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics</p> <p>G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics</p> <p>G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts</p> <p>G.R.2 Recognize, compare, and use an array of representational forms</p> <p>G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)</p> <p>NYSED Performance Indicators Reinforced</p> <p>6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning</p>				

Semester 2 : Day 38	11.2	How can I determine if triangles are similar?	Discover shortcut methods for determining similar triangles Practice using proportions to find measures in similar figures Develop problem-solving skills and cooperative behavior	Investigations “Is AA a Similarity Shortcut?”, “Is SSS a Similarity Shortcut?”, and “Is SAS a Similarity Shortcut?” 1-6	7-14, 20, 21
	NYSED Performance Indicators Addressed G.G.44 Establish similarity of triangles, using the following theorems: AA, SAS, and SSS G.G.45 Investigate, justify, and apply theorems about similar triangles G.G.58 Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries) G.G.59 Investigate, justify, and apply the properties that remain invariant under similarities G.G.60 Identify specific similarities by observing orientation, numbers of invariant points, and/or parallelism G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.RP.9 Apply inductive reasoning in making and supporting mathematical conjectures G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.6 Support or reject arguments or questions raised by others about the correctness of mathematical work G.R.8 Use mathematics to show and understand mathematical phenomena (e.g., use investigation, discovery, conjecture, reasoning, arguments, justification and proofs to validate that the two base angles of an isosceles triangle are congruent)				
	NYSED Performance Indicators Reinforced 6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 39	Exploration “Constructing a Dilation Design”	How do I construct a dilation design?	Explore dilation by constructing a dilation design	Quiz, Lessons 11.1-11.2 Activity “Dilation Creations”	
	NYSED Performance Indicators Addressed G.G.58 Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries)				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 40	11.3	How do I use similar triangles to make indirect measurements?	Use similar triangles to solve applied problems Develop reading comprehension and problem-solving skills	Investigation “Mirror, Mirror” 1-6	7, 9, 11-13, 15, 16
	NYSED Performance Indicators Addressed G.G.45 Investigate, justify, and apply theorems about similar triangles G.G.58 Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries) G.CM.9 Formulate mathematical questions that elicit, extend, or challenge strategies, solutions, and/or conjectures of others G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.4 Select appropriate representations to solve problem situations G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				

	NYSED Performance Indicators Reinforced 6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 41	11.4	What is the relationship between the ratio of the scale factor of similar triangles and the ratio of their corresponding parts?	Discover a relationship between corresponding parts of similar triangles Explore the ratio of the parts into which an angle bisector of a triangle divides the angle's opposite side	Investigations "Corresponding Parts" and "Opposite Side Ratios" Example 1-6	7-13, 16, 18-20
	NYSED Performance Indicators Addressed G.G.45 Investigate, justify, and apply theorems about similar triangles G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts				
	NYSED Performance Indicators Reinforced 6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
es	11.5	How can I use the scale factor of	Discover the relationship between the areas of similar figures	Quiz, Lessons 11.3-11.4	6-10, 14, 15, 19

		similar figures to determine the ratio of any corresponding two-dimensional parts?	Discover the relationship between the surface areas of similar solids Apply the similarity conjectures to problems involving area	Investigations “Area Ratios” and “Surface Area Ratios” 1-5	
	NYSED Performance Indicators Addressed G.G.45 Investigate, justify, and apply theorems about similar triangles G.G.47 (<i>weak correlation</i>) Investigate, justify, and apply theorems about mean proportionality: <ul style="list-style-type: none"> the altitude to the hypotenuse of a right triangle is the mean proportional between the two segments along the hypotenuse the altitude to the hypotenuse of a right triangle divides the hypotenuse so that either leg of the right triangle is the mean proportional between the hypotenuse and segment of the hypotenuse adjacent to that leg G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.3 Use representation as a tool for exploring and understanding mathematical ideas G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced 6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
e s	11.6	How can I use similarity	Discover the relationship between volumes of similar solids	Investigation “Volume Ratios”	8, 10, 12, 16-18

		conjectures to solve problems?	Apply the similarity conjectures to problems involving volume	1-7	
	NYSED Performance Indicators Addressed G.G.45 Investigate, justify, and apply theorems about similar triangles G.PS.2 Observe and explain patterns to formulate generalizations and conjectures G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.RP.3 Investigate and evaluate conjectures in mathematical terms, using mathematical strategies to reach a conclusion G.CM.1 Communicate verbally and in writing a correct, complete, coherent, and clear design (outline) and explanation for the steps used in solving a problem G.CM.9 Formulate mathematical questions that elicit, extend, or challenge strategies, solutions, and/or conjectures of others G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.3 Use representation as a tool for exploring and understanding mathematical ideas G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced 6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
e s	Exploration “Why Elephants Have Big	How does size relate to functionality?	Examine the plausibility of giant creatures Explore the relationship between size and	Activity “Convenient Sizes”	

	Ears?"		function in living creatures		
	NYSED Performance Indicators Addressed				
	G.CN.6 Recognize and apply mathematics to situations in the outside world				
	G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
Pacing	NYSED Performance Indicators Reinforced				
	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
	11.7	What is the ratio of the parts into which parallel lines cut the sides of a triangle?	Discover the relationship between the ratios of the parts into which parallel lines cut the sides of a triangle Extend the Parallel/Proportionality Conjecture to include multiple parallel lines Discover a construction method for dividing a segment into proportional parts	Investigations "Parallels and Proportionality" and "Extended Parallel/Proportionality" Examples A and B 1-7	8-13, 18, 25-26
Semester 2: Day 45	NYSED Performance Indicators Addressed				
	G.G.45 Investigate, justify, and apply theorems about similar triangles				
	G.G.46 Investigate, justify, and apply theorems about proportional relationships among the segments of the sides of the triangle, given one or more lines parallel to one side of a triangle and intersecting the other two sides of the triangle				
	G.RP.4 Provide correct mathematical arguments in response to other students' conjectures, reasoning, and arguments				
	G.RP.6 Evaluate written arguments for validity				
	G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 46	Exploration “Two More Forms of Valid Reasoning”	How can I use the Laws of Syllogism and Contrapositive to solve problems?	Learn to apply the Law of Syllogism Learn to apply the Law of Contrapositive	Activity “Symbolic Proofs”	
	NYSED Performance Indicators Addressed G.G.26 Identify and write the inverse, converse, and contrapositive of a given conditional statement and note the logical equivalences G.CM.3 Present organized mathematical ideas with the use of appropriate standard notations, including the use of symbols and other representations when sharing an idea in verbal and written form G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid G.CM.7 Read and listen for logical understanding of mathematical thinking shared by other students G.R.7 Use mathematics to show and understand social phenomena (e.g., determine if conclusions from another person’s argument have a logical foundation)				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 47	Chapter 11 Review			1-12, 14-22 even	13-21 odd
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 48	Chapter 11 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
--------	--------	--------------------	-------------------	---------------------	--------------------

NYC Pacing Guide for *Discovering Geometry* Chapter 12

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 49	12.1	How can I use trigonometry to find the length of the third side of a right triangle?	Encounter trigonometry and define the sine, cosine, and tangent ratios Understand the usefulness of trigonometry Learn new vocabulary	Investigation “Trigonometric Tables” Examples A-C 1-19 odd	2-20 even, 24-28
	NYSED Performance Indicators Addressed G.G.46 Investigate, justify, and apply theorems about proportional relationships among the segments of the sides of the triangle, given one or more lines parallel to one side of a triangle and intersecting the other two sides of the triangle G.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving G.CM.11 Understand and use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and geometric diagrams G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.2 Recognize, compare, and use an array of representational forms G.R.3 Use representation as a tool for exploring and understanding mathematical ideas				
	NYSED Performance Indicators Reinforced A.A.42 Find the sine, cosine, and tangent ratios of an angle of a right triangle, given the lengths of the sides A.A.43 Determine the measure of an angle of a right triangle, given the length of any two sides of the triangle A.A.44 Find the measure of a side of a right triangle, given an acute angle and the length of another side A.A.45 Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides				

Semester 2: Day 50	12.2	How do I use trigonometry to solve problems?	Use trigonometry to solve applied problems Learn new vocabulary Develop reading comprehension and problem-solving skills	Example 1-9	10-13, 21-24
	NYSED Performance Indicators Addressed G.PS.3 Use multiple representations to represent and explain problem situations (e.g., spatial, geometric, verbal, numeric, algebraic, and graphical representations) G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced A.A.42 Find the sine, cosine, and tangent ratios of an angle of a right triangle, given the lengths of the sides A.A.43 Determine the measure of an angle of a right triangle, given the length of any two sides of the triangle A.A.44 Find the measure of a side of a right triangle, given an acute angle and the length of another side A.A.45 Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 51	12.3	How can you find the area of a triangle given the length of two sides and the measure of the included angle?	Derive and apply the Law of Sines Develop problem-solving skills and cooperative behavior	Investigations “Area of a Triangle” and “The Law of Sines” Examples A-C 1-7	11, 16, 17, 19
	NYSED Performance Indicators Addressed G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics				

	G.CN.8 Develop an appreciation for the historical development of mathematics				
	G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced A.A.42 Find the sine, cosine, and tangent ratios of an angle of a right triangle, given the lengths of the sides A.A.43 Determine the measure of an angle of a right triangle, given the length of any two sides of the triangle A.A.44 Find the measure of a side of a right triangle, given an acute angle and the length of another side A.A.45 Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 52	12.4	How can I find the measures of missing parts of a triangle when I only know SAS or SSS?	Learn and apply the Law of Cosines Practice solving problems	Examples A and B 1-6, 10	7-9, 16-19
	NYSED Performance Indicators Addressed G.PS.1 Use a variety of problem solving strategies to understand new mathematical content G.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced A.A.42 Find the sine, cosine, and tangent ratios of an angle of a right triangle, given the lengths of the sides A.A.43 Determine the measure of an angle of a right triangle, given the length of any two sides of the triangle A.A.44 Find the measure of a side of a right triangle, given an acute angle and the length of another side A.A.45 Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 53	12.5	How can I use trigonometry to solve problems?	Use trigonometry to solve applied problems Reinforce visual thinking Develop reading comprehension, cooperative behavior, and problem-solving skills	Example 1-4	6-8, 16-18
	NYSED Performance Indicators Addressed G.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics G.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts G.R.6 Use mathematics to show and understand physical phenomena (e.g., determine the number of gallons of water in a fish tank)				
	NYSED Performance Indicators Reinforced A.A.42 Find the sine, cosine, and tangent ratios of an angle of a right triangle, given the lengths of the sides A.A.43 Determine the measure of an angle of a right triangle, given the length of any two sides of the triangle A.A.44 Find the measure of a side of a right triangle, given an acute angle and the length of another side A.A.45 Determine the measure of a third side of a right triangle using the Pythagorean theorem, given the lengths of any two sides				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2:	Using Your Algebra Skills 12	How do I change an algebraic function in order to create a geometric dilation or translation?	See how equations of basic functions change as the functions' graphs are dilated vertically and translated	1-17 odd	2-16 even

	NYSED Performance Indicators Addressed G.CN.1 Understand and make connections among multiple representations of the same mathematical idea G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics				
	NYSED Performance Indicators Reinforced 8.G.10 Draw the image of a figure under a translation 8.G.11 Draw the image of a figure under a dilation				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 55	Exploration “Three Types of Proof”	How do I create conditional and indirect proofs?	Examine conditional proof Explore indirect proof Deepen understanding of direct proof Broaden understanding of reasoning and proof	Activity “Prove It”	
	NYSED Performance Indicators Addressed G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.R.7 Use mathematics to show and understand social phenomena (e.g., determine if conclusions from another person’s argument have a logical foundation)				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
9 S	Chapter 12 Review			1-27 odd	2-28 even

	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 57	Chapter 12 Test				
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				

NYC Pacing Guide for *Discovering Geometry* Chapter 13

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 57	13.1	How can I organize mathematical ideas in order to avoid circular deductive reasoning?	Encounter the concept of a deductive system Learn new vocabulary See the postulates of geometry Learn to support statements with definitions, properties of algebra and equality, and postulates Develop deductive reasoning skills	1-23 odd	2-22 even, 27, 29, 30
	NYSED Performance Indicators Addressed G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies G.CN.8 Develop an appreciation for the historical development of mathematics				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 58	13.2	What are the five tasks for writing a proof?	Understand the process for planning and writing a proof Learn to state conjectures as conditional statements Develop deductive reasoning skills	Examples A and B 1-5, Jigsaw 6-13	14-18
	NYSED Performance Indicators Addressed G.G.27 Write a proof arguing from a given hypothesis to a given conclusion				

	<p>G.G.35 Determine if two lines cut by a transversal are parallel, based on the measure of given pairs of angles formed by the transversal and the lines</p> <p>G.PS.1 Use a variety of problem solving strategies to understand new mathematical content</p> <p>G.RP.1 Recognize that mathematical ideas can be supported by a variety of strategies</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p>				
	<p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.6 Present correct mathematical arguments in a variety of forms</p> <p>A.RP.8 Support an argument by using a systematic approach to test more than one case</p>				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 59	13.3	How can I use triangle congruence to prove conjectures?	Prove the Angle Bisector Conjecture using triangle congruence Practice using triangle congruence to prove conjectures	Example 1-4, 5-11 odd	6-12 (even), 14, 19, 20
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.30 Investigate, justify, and apply theorems about the sum of the measures of the angles of a triangle</p> <p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.RP.5 Present correct mathematical arguments in a variety of forms</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p>				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 59	A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case	How can I prove quadrilaterals? Conjectures	Write proofs for parallelogram conjectures Practice using triangle theorems to prove quadrilateral theorems Learn new vocabulary	Quiz, Lessons 13.1-13.3 Developing Proof “Proving Parallelogram Conjectures”	6-12 even, 15-17, 20
			Develop cooperative behavior	1-4, 5-11 odd	
	NYSED Performance Indicators Addressed G.G.38 Investigate, justify, and apply theorems about parallelograms involving their angles, sides, and diagonals G.G.39 Investigate, justify, and apply theorems about special parallelograms (rectangles, rhombuses, squares) involving their angles, sides, and diagonals G.G.40 Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles, sides, medians, and diagonals G.G.41 Justify that some quadrilaterals are parallelograms, rhombuses, rectangles, squares, or trapezoids G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)				

	G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 60	13.5	How can I use indirect proof to prove theorems?	Learn how to write indirect proofs in paragraph form Develop visual thinking and deductive reasoning	Developing Proof “Proving the Tangent Conjecture” 1-5, 6-10 even	7-13 odd
	NYSED Performance Indicators Addressed G.G.40 Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles, sides, medians, and diagonals G.G.49 Investigate, justify, and apply theorems regarding chords of a circle: <ul style="list-style-type: none"> o perpendicular bisectors of chords o the relative lengths of chords as compared to their distance from the center of the circle G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture				

	A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 61	13.5	How can I prove circle conjectures?	Review circle relationships Prove circle conjectures	1-5	6-14
	NYSED Performance Indicators Addressed G.G.36 Investigate, justify, and apply theorems about the sum of the measures of the interior and exterior angles of polygons G.G.50 Investigate, justify, and apply theorems about tangent lines to a circle: <ul style="list-style-type: none"> o a perpendicular to the tangent at the point of tangency o two tangents to a circle from the same external point o common tangents of two non-intersecting or tangent circles G.G.51 Investigate, justify, and apply theorems about the arcs determined by the rays of angles formed by two lines intersecting a circle when the vertex is: <ul style="list-style-type: none"> o inside the circle (two chords) o on the circle (tangent and chord) o outside the circle (two tangents, two secants, or tangent and secant) G.G.52 Investigate, justify, and apply theorems about arcs of a circle cut by two parallel lines G.G.53 Investigate, justify, and apply theorems regarding segments intersected by a circle: <ul style="list-style-type: none"> o along two tangents from the same external point o along two secants from the same external point o along a tangent and a secant from the same external point o along two intersecting chords of a given circle G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.RP.5 Present correct mathematical arguments in a variety of forms				

	G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)
	G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid
	<p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.6 Present correct mathematical arguments in a variety of forms</p> <p>A.RP.8 Support an argument by using a systematic approach to test more than one case</p>

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 62	13.7	How can I prove conjectures using properties of similarity?	Prove conjectures using properties of similarity Review similar triangles	Example Developing Proof “Proving the SSS Similarity Conjecture” 1, 2, 7, 8	3-6, 14, 15, 18
	<p>NYSED Performance Indicators Addressed</p> <p>G.G.44 Establish similarity of triangles, using the following theorems: AA, SAS, and SSS</p> <p>G.G.45 Investigate, justify, and apply theorems about similar triangles</p> <p>G.G.46 Investigate, justify, and apply theorems about proportional relationships among the segments of the sides of the triangle, given one or more lines parallel to one side of a triangle and intersecting the other two sides of the triangle</p> <p>G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems</p> <p>G.RP.5 Present correct mathematical arguments in a variety of forms</p> <p>G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational)</p> <p>G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid</p> <p>NYSED Performance Indicators Reinforced</p> <p>A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture</p> <p>A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language</p> <p>A.RP.6 Present correct mathematical arguments in a variety of forms</p> <p>A.RP.8 Support an argument by using a systematic approach to test more than one case</p>				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 63	Using Your Algebra Skills 13	How can coordinate geometry be used in writing proofs?	Review parallel and perpendicular slope properties Review the distance formula Use the coordinate proof properties Learn to plan and write coordinate proofs	Examples A and B 1-13 odd	2-12 even
	NYSED Performance Indicators Addressed G.G.21 Investigate and apply the concurrence of medians, altitudes, angle bisectors, and perpendicular bisectors of triangles G.G.69 Investigate, justify, and apply the properties of triangles and quadrilaterals in the coordinate plane, using the distance, midpoint, and slope formulas G.PS.4 Construct various types of reasoning, arguments, justifications and methods of proof for problems G.RP.2 Recognize and verify, where appropriate, geometric relationships of perpendicularity, parallelism, congruence, and similarity, using algebraic strategies G.RP.5 Present correct mathematical arguments in a variety of forms G.RP.7 Construct a proof using a variety of methods (e.g., deductive, analytic, transformational) G.CM.4 Explain relationships among different representations of a problem G.CM.5 Communicate logical arguments clearly, showing why a result makes sense and why the reasoning is valid G.CN.4 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics G.R.5 Investigate relationships between different representations and their impact on a given problem				
	NYSED Performance Indicators Reinforced A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture				

	A.RP.4 Develop, verify, and explain an argument, using appropriate mathematical ideas and language A.RP.6 Present correct mathematical arguments in a variety of forms A.RP.8 Support an argument by using a systematic approach to test more than one case				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 63	Chapter 13 Review			1-27 odd	2-26 even
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 64	Chapter 13 Test				
	NYSED Content Strand				
	NYSED Performance Indicators Reinforced				

Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2: Day 65	Semester Review			Mixed Review (pages 686-689) 29-66	
	NYSED Performance Indicators Addressed				
	NYSED Performance Indicators Reinforced				
Pacing	Lesson	Essential Question	Lesson Objectives	Suggested Classwork	Suggested Homework
Semester 2:	Semester Final Exam				
	NYSED Performance Indicators Addressed				